

CLINICAL PRACTICE GUIDELINES

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MANAGEMENT OF ATTENTION DEFICIT HYPERACTIVITY DISORDER IN CHILDREN AND ADOLESCENTS



MINISTRY OF HEALTH
MALAYSIA



MALAYSIAN PSYCHIATRIC
ASSOCIATION



ACADEMY OF MEDICINE
MALAYSIA

This guideline is meant to be a guide for clinical practice, based on the best available evidence at the time of development. Adherence to this guideline may not necessarily guarantee the best outcome in every case. Every health care provider is responsible for the management of his/her unique patient based on the clinical picture presented by the patient and the management options available locally.

Review of the Guidelines

This guideline was issued in 2008 and will be reviewed in 2012 or sooner if new evidence becomes available.

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Electronic version available on the following website:

<http://www.moh.gov.my>
<http://www.acadmed.org.my>
<http://www.psychiatry-malaysia.org>
<http://www.mpaeds.org.my>

GUIDELINE DEVELOPMENT

The development group for this guideline consist of child and adolescent psychiatrists, general psychiatrists, paediatricians, family medicine specialists, a clinical psychologist, a pharmacist, special needs educator, and an occupational therapist. The members of the development group are from the Ministry of Health Malaysia, Ministry of Education, Ministry of Higher Education Malaysia and the private sector. During the process of development of this guideline, there was active involvement of a review committee comprising child and adolescent psychiatrists, general psychiatrists, paediatricians, public health specialists both from the government and private sector as well as non-governmental organisations (NGOs)

This is the first guideline by the Ministry of Health that have included participation from non healthcare professionals who are involved in the care of children and adolescents with Attention Deficit Hyperactivity Disorder (ADHD).

Literature search was carried out at the following electronic databases: International Health Technology Assessment Websites, PUBMED, Cochrane Database of Systematic Reviews (CDSR), Journal full text via OVID search engine, PsycINFO, Biomedical Reference Collection, Comprehensive Database of Abstracts of Reviews of Effectiveness, Psychology and Behavioural Sciences Collection, Cochrane Controlled Trials Registered, CINAHL, Academic Search Premier, ERIC, PsycARTICLES via EBSCO search engine. In addition, the reference lists of all relevant articles retrieved were searched to identify further studies. The following free text terms or MeSH terms were used either singly or in combination: *attention deficit hyperactivity disorder; ADHD; pharmacotherapy; hyperkinetic; risk factors; causal; television; diet; sugar; psychopathology; co-morbid; assessment; Conduct Disorder; autism; rating scale; teacher report; diagnostic criteria; DSM IV; ICD 10; differential diagnosis; history; physical examination; laboratory diagnosis; diagnosis; family counselling; family therapy; psycho-education; non-pharmacological; social skill; self management; behaviour management; CBT; cognitive therapy; play therapy; parent education; parent training; parent knowledge; parent counselling; knowledge; parental training; family treatment; school based intervention; medication counselling; preschooler medication; stimulant medication; treatment adherence; effectiveness; adverse effects.*

Reference was also made to other guidelines on the Management of Attention Deficit Hyperactivity Disorder including the Scottish Intercollegiate Guideline Network - National Guideline on Attention Deficit and Hyperkinetic Disorder in Children and Young People 2001, University of Michigan Health System

Guidelines for Clinical Care - on Attention Deficit Hyperactivity Disorder 2005, Institute for Clinical System Improvement Health Care Guidelines on Diagnosis and Management of Attention Hyperactivity Disorder in Primary Care for School Age Children and Adolescence 2005, Cincinnati Children's Hospital Medical Center - Evidence Based CPG on Outpatient Evaluation and Management of Attention Deficit/Hyperactivity Disorder 2004, American Academy Of Pediatrics Clinical Practice Guideline - Diagnosis and Evaluation of the Child With Attention-Deficit/Hyperactivity Disorder 2000, New Zealand Guidelines for the Assessment and Treatment of Attention-Deficit/ Hyperactivity Disorder 2001, AACAP Practice Parameter for the Assessment and Treatment of Children and Adolescents with Attention-Deficit/Hyperactivity Disorder 2007 and The European Clinical Guidelines for Hyperkinetic Disorder- first update European Child & Adolescent Psychiatry 2004.

This guideline is based largely on the findings of systematic reviews and meta-analyses in the literature, taking into consideration local practices.

The clinical questions were divided into major subgroups and members of the development group were assigned individual topics within these subgroups. The group members met a total of 15 times throughout the development of the guideline. All literature retrieved was appraised by at least two members and presented and discussed during group meetings. All statements and recommendations formulated were agreed by both the development group and the review committee. Where the evidence was insufficient the recommendations were derived by consensus of the development group and the review committee.

The articles were graded using the modified version of the criteria used by the Catalonia Agency for Health Technology Assessment and Research (CAHTAR) Spain, while the grading of recommendation in this guideline was modified from the Scottish Intercollegiate Guidelines Network (SIGN).

The draft guideline was posted on the Ministry of Health Malaysia website for comment and feedback. This guideline has also been presented to the Technical Advisory Committee for Clinical Practice Guidelines, and the Health Technology Assessment and Clinical Practice Guidelines Council, Ministry of Health Malaysia and was reviewed and approved.

OBJECTIVE

To provide evidence-based guidelines in the assessment and management of ADHD in children and adolescents.

CLINICAL QUESTIONS

- What is ADHD?
- What are the risk factors?
- How is ADHD recognized and diagnosed?
- What are the associated co-morbidities?
- How is ADHD treated?
- What is the pharmacological treatment?
- How should pre-schoolers be managed?
- What are the non-pharmacological treatment modalities?
- Is there a role for alternative therapy?
- When and to whom do primary care providers and teachers refer?
- What is the follow-up plan?
- Can treatment be stopped?

TARGET POPULATION

This guideline is developed for the Management of ADHD in children and adolescents under the age of 18. Management of associated co-morbidities (e.g. mental retardation, pervasive developmental disorders) are not included.

TARGET GROUP / USERS

This guideline is applicable to all health care professionals involved in treating patients with ADHD, i.e. primary care doctors, medical officers, nurses, medical assistants, paediatricians, psychiatrists, psychologists / counsellors, social workers, pharmacists, speech therapists, occupational therapists, as well as educators.

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SUMMARY OF RECOMMENDATIONS

RISK FACTORS

Parents and siblings of children and adolescents with ADHD should be screened for ADHD. Grade C

Children who have a history of preterm birth, low birth weight and neonatal complications may benefit from assessment for ADHD. Grade C

Pregnant mothers should be discouraged from smoking. Grade A

Early recognition of maternal stress and subsequent intervention is encouraged. Grade A

Television viewing in very young children (less than two years) should be discouraged. Grade C

Children and adolescents should be discouraged from watching more than three hours of television per day. Grade B

ASSESSMENT AND DIAGNOSIS

A comprehensive history from family members, teachers and patients should be obtained. Grade C

Laboratory tests should not be routinely performed. Grade C

SCREENING

The two screening questions for ADHD should be used routinely by teachers, parents and health-care providers. Grade C

COMORBIDITIES

Children with ADHD should be evaluated for comorbidities (e.g. oppositional defiant disorder, conduct disorder, learning disorder) and referred to the psychiatrist or paediatrician for further management. Grade C

MANAGEMENT OF ADHD

Management should be comprehensive and should include pharmacological methods and non-pharmacological methods.

Grade A

Treatment should be individualised and the preferences of the family should be taken into consideration.

Grade C

Preschoolers with ADHD should be referred to a child psychiatrist or paediatrician for further management.

Grade C

PHARMACOLOGICAL TREATMENT

Medication for school aged children and adolescents should be initiated by a psychiatrist OR a paediatrician.

Grade C

Initiation of medication should include medication counselling.

Grade B

Stimulants OR atomoxetine should be used.

Grade A

Long acting stimulants or atomoxetine should be considered due to convenience, adherence and stigma reduction.

Grade B

When stimulants or atomoxetine do not produce response or have serious side effects, TCAs or neuroleptics may be prescribed.

Grade B

If medication does not result in satisfactory treatment, a review of diagnosis and management should be considered.

Grade A

Medication for **preschoolers** should be initiated by a **child psychiatrist OR a paediatrician** familiar with the management of ADHD (in this group).

Grade C

If medication is required for preschoolers, methylphenidate may be prescribed in doses lower than those used in school aged children and titrated slowly.

Grade B

Children on stimulant medication should have their height and weight regularly monitored.

Grade A

'Drug holidays' may be offered in certain circumstances, e.g. to avoid the side effects of medication.

Grade C

NON-PHARMACOLOGICAL TREATMENT

Psycho-education should be provided to children and their families.

Grade B

Parental training should be offered by trained professionals as it improves symptoms in the patient and enhances coping mechanisms especially for the parents.

Grade B

Parental training should wherever possible be used in combination with medication therapy.

Grade A

Parents should be given advice on how to manage the behaviour of the child.

Grade C

A structured school based intervention programme should be made available.

Grade A

The child should be placed in a mainstream classroom with provision of teacher's aide.

Grade C

Dietary modifications should not be routinely recommended.

Grade C

Parents are encouraged to monitor the effects of specific food items on their child's behaviour and inform their doctor.

Grade C

Alternative interventions (e.g. homeopathy, EEG, biofeedback and neuro-feedback) are not recommended.

Grade C

COMBINATION THERAPY

Either pharmacotherapy alone OR combination treatment (pharmacotherapy and non-pharmacological treatment) should be offered.

Grade A

FOLLOW UP

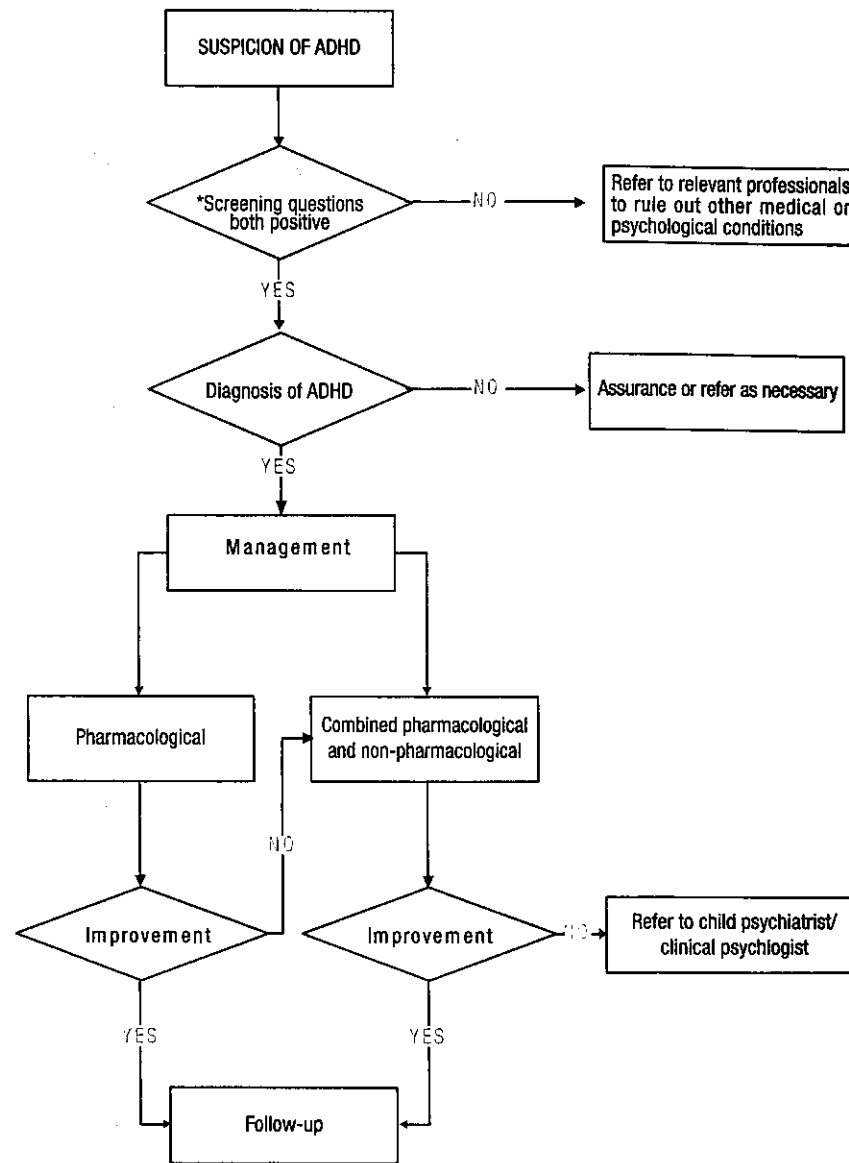
Children with ADHD should be regularly followed-up by their clinicians.

Grade A

The treatment of ADHD should continue as long as the symptoms persist. Cessation of medication may be considered after proper evaluation.

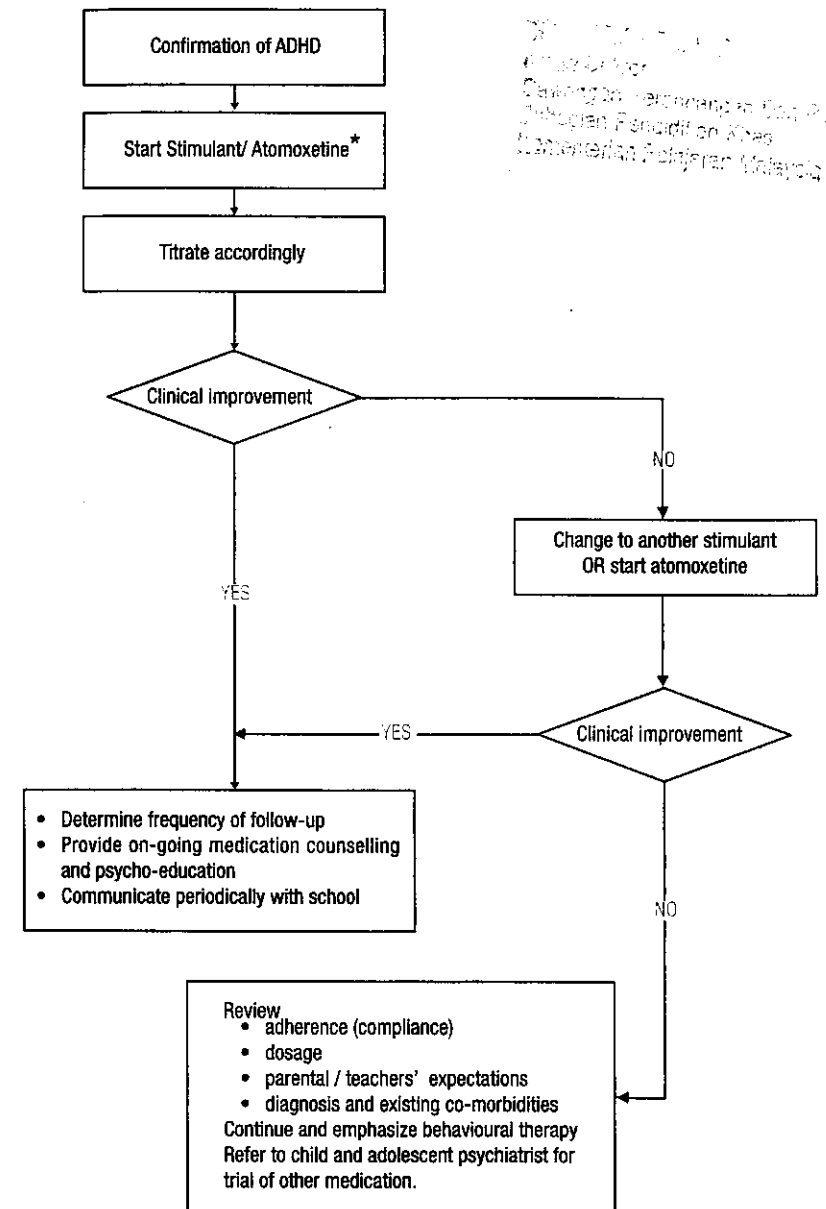
Grade A

ALGORITHM FOR MANAGEMENT OF ADHD



* The two screening questions are
 1. Is the child unable to pay attention?
 2. Is the child extremely active?

ALGORITHM FOR PHARMACOLOGICAL MANAGEMENT



*Psychiatrists OR paediatricians to initiate medication

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1. INTRODUCTION

Attention Deficit Hyperactivity Disorder (ADHD) is one of the most frequently encountered childhood-onset neuro-behavioural disorders in primary care settings. It has defining features of inattention, over-activity and impulsivity. The core symptoms co-exist with other emotional, behavioural and learning disorders.^{1,2}

Often primary care physicians, paediatricians, psychiatrists, clinical psychologists and others are asked to evaluate and treat a child who has disruptive relationships with peers, defies parental discipline and does poorly in school. ADHD could account for some of these symptoms. Early recognition, assessment, and management of this condition can improve the educational and psychosocial difficulties faced by the child and adolescent.¹⁻³

Screening for hyperactivity and inattention (the hallmark symptoms of ADHD) in a community survey amongst Malaysian children and adolescents between the ages of 5 – 15 years showed a prevalence rate of 3.9 %. It is more common in males compared to females.^{3,4}

2. RISK FACTORS

Several risk factors have been identified in the causation of ADHD. These factors may be biological or non-biological in nature. ADHD is three times more likely to occur in males^{5, Level 7} and is more common in first born children.^{6, Level 8}

Genetic factors are important in the causation of ADHD. Children with ADHD are two to eight times more likely to have a parent with ADHD.^{7, Level 7; 8, Level 7; 9, Level 9} Mean heritability estimate of ADHD from twenty twin studies is 76%. There are at least seven genes that have been found to be significantly associated with ADHD i.e. DRD4, DRD5, DAT, DBH, 5-HTT, HTR1B, and SNAP-25.^{9, Level 9}

Preterm birth is associated with more than twice the risk of developing ADHD,^{10, Level 1; 11, Level 7} while children with low birth weight have two to three fold increased risk.^{7, Level 7; 11, Level 7}

Children with ADHD have significantly higher rates of neonatal complications compared with their unaffected siblings.^{12, Level 7}

A systematic review of 24 studies showed a greater risk of ADHD-related disorder among children whose mothers smoked during pregnancy. However, this same review showed inconclusive evidence for maternal alcohol use leading to ADHD in children and adolescents.^{13, Level 1} Children whose mothers were exposed to poly-substance use (i.e. heroin, alcohol, tobacco, cannabis, amphetamines, benzodiazepines) during pregnancy had significantly elevated levels of impulsivity and attention problems.^{14, Level 7} This is also seen in those exposed to lead and polychlorinated biphenyls (PCBs).^{15, Level 1; 16, Level 8}

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- Panel of external reviewers who reviewed the draft.
- Ms Rosnah Siran, Matron, Health Technology Assessment Section, Ministry of Health.
- Technical Advisory Committee for Clinical Practice Guidelines for their valuable input and feedback.

DISCLOSURE STATEMENT

The panel members have completed disclosure forms. (Details are available upon request from the CPG Secretariat)

SOURCES OF FUNDING

The development of the CPG on Management of Attention Deficit Hyperactivity was supported financially in its entirety by the Ministry of Health Malaysia and was developed without any involvement of the pharmaceutical industry.

LEVELS OF EVIDENCE SCALE

LEVEL	STRENGTH OF EVIDENCE	STUDY DESIGN
1	Good	Meta-analysis of RCT, Systematic review
2	Good	Large sample RCT
3	Good to Fair	Small sample RCT
4		Non-randomised controlled prospective trial
5	Fair	Non-randomised controlled prospective trial with historical control
6	Fair	Cohort studies
7	Poor	Case-control studies
8	Poor	Non-controlled clinical series, descriptive studies multi-centre
9	Poor	Expert committees, consensus, case reports, anecdotes

SOURCE: ADAPTED FROM THE CATALONIAN AGENCY FOR HEALTH TECHNOLOGY ASSESSMENT & RESEARCH, (CAHTAR) SPAIN

GRADES OF RECOMMENDATION

A	At least one meta analysis, systematic review, or RCT, or evidence rated as good and directly applicable to the target population
B	Evidence from well conducted clinical trials, directly applicable to the target population, and demonstrating overall consistency of results; or evidence extrapolated from meta analysis, systematic review, or RCT
C	Evidence from expert committee reports, or opinions and /or clinical experiences of respected authorities; indicates absence of directly applicable clinical studies of good quality

SOURCE: MODIFIED FROM THE SCOTTISH INTERCOLLEGIATE GUIDELINES NETWORK (SIGN)